

REMARKS

The Office Action mailed June 11, 2007 has been carefully considered. Reconsideration in view of the following remarks is respectfully requested.

Claim Status and Amendment to the Claims

Claims 1-61 are pending.

No Claims stand allowed.

The 35 U.S.C. § 102 Rejection

Claims 1-5, 11, 12, 18-20, 26-28, 34-36, 42-46, 49, 50, 52-55, 58, 59, 61 stand rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Veeneman et al.¹ ² This rejection is respectfully traversed.

According to the M.P.E.P., a claim is anticipated under 35 U.S.C. § 102(a), (b) and (e) only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.³

Claim 1

Claim 1 recites:

A method for creating a bundle of soft permanent virtual circuits (SPVCs) coupling form a source end to a destination end via a communications network, said method comprising:

¹ U.S. Patent No. 6,771,650 to Veeneman et al.

² Office Action mailed June 11, 2007, at ¶4.

³ Manual of Patent Examining Procedure (MPEP) § 2131. See also *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

creating an SPVC bundle for the source end, the SPVC bundle comprising a plurality of member SPVCs, each member SPVC comprising a permanent virtual circuit (PVC) and a switched virtual circuit (SVC), each of the member SPVCs being associated with a respective connection characteristic and coupling to a same destination; and transmitting, from the source end to the destination end, an SPVC setup message containing configuration information of the SPVC bundle.

The Examiner states:

... Veeneman teaches a method for creating a bundle of soft permanent virtual circuits (SPVCs) coupling from a source end to a destination end via a communications network [Fig. 41, comprising: creating an SPVC bundle for the source end [Col. 3, lines 34-38, where bundle of paths are created by multiple connections] the SPVC bundle comprising a plurality of member SPVCs]Fig. 2, 361701, each member SPVC comprising a permanent virtual circuit (PVC) and a switched virtual circuit (SVC) [Col. 3, lines 34-361, each of the member SPVCs being associated with a respective connection characteristic and coupling to a same destination [Fig. 4, bundle of paths going from x to y and each path has a cost associated with it]; and transmitting, from the source end to the destination end, an SPVC setup message containing configuration information of the SPVC bundle [Col. 4, lines 55-64].⁴

The Applicants respectfully disagree for the reasons set forth below.

Veeneman et al. Does Not Disclose Creating An SPVC Bundle For The Source End, The SPVC Bundle Comprising A Plurality Of Member SPVCs, Each Member SPVC Comprising A Permanent Virtual Circuit (PVC) And A Switched Virtual Circuit (SVC), Each Of The Member SPVCs Being Associated With A Respective Connection Characteristic And Coupling To A Same Destination

In support of the Examiners contention that Veeneman et al. discloses creating an SPVC bundle for the source end, the Examiner refers to the following portion of Veeneman et al.:

The 46020 is able to route a hybrid path by using PVC cross-connects outside of the cloud and using SPVCs when traversing nodes inside the cloud. Such paths are known herein as Hybrid Switched Permanent Virtual Connections (HSPVCs).⁵

⁴ Office Action dated June 11, 2007, pp. 2-3.

Despite the Examiner's parenthetical comment that "where a bundle of paths are crated [sic] by multiple connections," the fact that multiple paths *may* be created does not equate to the creation of an SPVC *bundle* as required by Claim 1. The Examiner is reminded that a rejection under 35 U.S.C. § 102 requires that the identical invention must be shown in as complete detail as is contained in the claim.⁶

Furthermore, the Applicants respectfully submit the Examiner's equating an SPVC bundle with the Hybrid Switched Permanent Virtual Connection (HSPVC) of Veeneman et al. is improper. Claim 1 requires that *each* of the member SPVCs in the SPVC bundle comprises a permanent virtual circuit (PVC) and a switched virtual circuit (SVC). The HSPVC of Veeneman et al. includes a SPVC portion and a non-SPVC portion.⁷ Whereas Claim 1 requires an SPVC bundle, where *each* of the member SPVCs comprise a PVC *and* an SVC.

Claim 1 also requires that each of the member SPVCs be associated with a respective connection characteristic. The Examiner refers to FIG. 4 of Veeneman et al., which illustrates an HSPVC path. As stated above, the HSPVC of Veeneman et al. is not an SPVC bundle where each of the member SPVCs comprise a PVC and an SVC. Thus, Veeneman et al. cannot be said to disclose that each member of the SPVC bundle be associated with a respective connection characteristic.

⁵ Veeneman et al. at col. 3 ll. 34-38.

⁶ *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226 (Fed. Cir. 1989). See also M.P.E.P. § 2131.

⁷ Veeneman et al. at col. 4 ll. 65-66.

For the above reasons, the 35 U.S.C. § 102 rejection of Claim 1 is unsupported by the cited art of record. Thus, a *prima facie* case has not been established and the rejection must be withdrawn.

Veeneman et al. Does Not Disclose Transmitting, From The Source End To The Destination

End, An SPVC Setup Message Containing Configuration Information Of The SPVC Bundle

In support of the Examiner's contention that Veeneman et al. discloses transmitting, from the source end to the destination end, an SPVC setup message containing configuration information of the SPVC bundle, the Examiner refers to the following portion of Veeneman et al.:

Having chosen the links, the 46020 would connect the HSPVC via PVC cross-connects in the PVC clouds, and via the SPVC connect from the base of link 2 to the base of link 3 in the SPVC cloud.

Note that if the links the path takes to enter and leave the SPVC cloud reside on the same node inside the cloud, the 46020 will request that node to perform a PVC cross-connect for the path rather than requesting it to connect an SPVC. In that case the path would not have an SPVC portion.⁸

The first sentence from Veeneman et al. quoted above says nothing about transmitting a setup message, let alone an SPVC setup message containing configuration information of the SPVC bundle. The second sentence from Veeneman et al. quoted above refers to a request for a node to perform a PVC cross-connect which would result in a path with *no SPVC portion* and thus cannot be said to disclose transmitting an SPVC setup message containing configuration information of the SPVC bundle as required by Claim 1. For this additional reason, the 35 U.S.C. § 102 rejection of Claim 1 is unsupported by the cited art of record and the rejection must be withdrawn.

Claims 2-5

Claims 2-5 depend from Claim 1. Claim 1 being allowable, Claims 2-5 must also be allowable.

Claim 2

Claim 2 recites:

The method in accordance with claim 1, further comprising:
receiving parameters defining the SPVC bundle at the source end, the
configuration information transmitted to the destination end corresponding to
the parameters.

The Examiner states:

... Veeneman teaches receiving parameters defining the SPVC bundle at the source end, the configuration information transmitted to the destination end corresponding to the parameters [Col. 4, lines 43-46].⁹

The Applicants respectfully disagree. In support of the Examiner's statement, the Examiner refers to the following portion of Veeneman et al.:

FIG. 4 illustrates the use of the accumulated admin weights of the SPVC VPCLs for connectivity and as a tie breaker. For a HSPVC path from x to y, the route via links 2 and 3 will be chosen because:¹⁰

The above portion of Veeneman et al. referenced by the Examiner says nothing about the required limitation of receiving parameters defining the SPVC bundle at the source end, the configuration information transmitted to the destination end corresponding to the parameters.

For this additional reason, the 35 U.S.C. § 102 rejection of Claim 2 is unsupported by the cited art of record and must be withdrawn.

⁸ Veeneman et al. at col. 4 ll. 55-64.

⁹ Office Action, p. 3.

¹⁰ Veeneman et al. at col. 4 ll. 43-46.

Claim 3

Claim 3 recites:

The method in accordance with claim 1, further comprising:
automatically creating, at the destination end, in response to the SPVC setup message, the SPVC bundle for the destination end in accordance with the configuration information.

The Examiner states:

... Veeneman teaches automatically creating, at the destination end, in response to the SPVC setup message, the SPVC bundle for the destination end in accordance with the configuration information [Col. 4, lines 55-64].¹¹

The Applicants respectfully disagree. In support of the Examiner's statement, the Examiner refers to the following portion of Veeneman et al.:

Having chosen the links, the 46020 would connect the HSPVC via PVC cross-connects in the PVC clouds, and via the SPVC connect from the base of link 2 to the base of link 3 in the SPVC cloud.

Note that if the links the path takes to enter and leave the SPVC cloud reside on the same node inside the cloud, the 46020 will request that node to perform a PVC cross-connect for the path rather than requesting it to connect an SPVC. In that case the path would not have an SPVC portion.¹²

The arguments made above with respect to the "transmitting" element of Claim 1 apply here as well. The above portion of Veeneman et al. referenced by the Examiner says nothing about the required limitation of automatically creating, at the destination end, in response to the SPVC setup message, the SPVC bundle for the destination end in accordance with the configuration information. For this additional reason, the 35 U.S.C. § 102 rejection of Claim 3 is unsupported by the cited art of record and must be withdrawn.

¹¹ Office Action, p. 3.

¹² Veeneman et al. at col. 4 ll. 55-64.

Claim 5

Claim 5 recites:

The method in accordance with claim 1, wherein the configuration information comprises:
bundle-level parameters; and
parameters for individual member SPVCs.

The Examiner states:

... Regarding claims 5, 12, 20, 28, 36, 46, 50, 55, 59, Veeneman teaches the configuration information comprises: bundle-level parameters; and parameters for individual member SPVCs [Col. 4, lines 24-25].¹³

The Applicants respectfully disagree. In support of the Examiner's statement, the Examiner refers to the following portion of Veeneman et al.:

The first and the last endpoint inside the cloud that are used by the route are the endpoints of the SPVC portion.¹⁴

The above portion of Veeneman et al. referenced by the Examiner says nothing about the required limitation of wherein the configuration information comprises bundle-level parameters and

parameters for individual member SPVCs. For this additional reason, the 35 U.S.C. § 102 rejection of Claim 5 is unsupported by the cited art of record and must be withdrawn.

Claim 11

Claim 11 recites:

A method for creating, at a destination network device, a bundle of soft permanent virtual circuits (SPVCs) coupling form a source network device to the destination network device via a communications network, said method comprising:
receiving and decoding an SPVC setup message containing SPVC bundle information for creating an SPVC bundle coupled from a specified source

¹³ Office Action, p. 3.

¹⁴ Veeneman et al. at col. 4 ll. 24-25.

end, the SPVC bundle comprising a plurality of member SPVCs, each of the member SPVC comprising a permanent virtual circuit (PVC) and a switched virtual circuit (SVC);
extracting parameters from the SPVC bundle information; and
creating the SPVC bundle based on the extracted parameters, each of the member SPVCs being associated with a respective connection characteristic and coupled from the specified source end.

The Examiner states:

... Veeneman teaches a method for creating, at a destination network device, a bundle of soft permanent virtual circuits (SPVCs) coupling form a source network device to the destination network device via a communications network [Fig. 41, comprising: receiving and decoding an SPVC setup message containing SPVC bundle information for creating an SPVC bundle coupled from a specified source end [Col. 4, lines 55-581, the SPVC bundle comprising a plurality of member SPVCs [Fig. 2, 361701, each of the member SPVC comprising a permanent virtual circuit (PVC) and a switched virtual circuit (SVC) [Col. 3, lines 34-361; extracting parameters from the SPVC bundle information [Col. 4, lines 20-221; and creating the SPVC bundle based on the extracted parameters [Col. 4, lines 24-251, each of the member SPVCs being associated with a respective connection characteristic and coupled from the specified source end [Fig. 4, bundle of paths going from x to y and each path has a cost associated with it¹⁵].

The Applicants respectfully disagree. The arguments made above with respect to Claim 1 apply here as well.

Veeneman et al. Does Not Teach Receiving And Decoding An SPVC Setup Message Containing SPVC Bundle Information For Creating An SPVC Bundle Coupled From A Specified Source End, The SPVC Bundle Comprising A Plurality Of Member SPVCs, Each Of The Member SPVC Comprising A Permanent Virtual Circuit (PVC) And A Switched Virtual Circuit (SVC)

Again, the Applicants respectfully submit the Examiner's equating an SPVC bundle with the Hybrid Switched Permanent Virtual Connection (HSPVC) of Veeneman et al. is improper. Claim 11 requires that *each* of the member SPVCs in the SPVC bundle comprises a permanent virtual circuit (PVC) and a switched virtual circuit (SVC). The HSPVC of Veeneman et al.

¹⁵ Office Action, p. 3.

includes a SPVC portion and a non-SPVC portion.¹⁶ Whereas Claim 1 requires an SPVC bundle, where *each* of the member SPVCs comprise a PVC *and* an SVC.

For the above reasons, the 35 U.S.C. § 102 rejection of Claim 11 is unsupported by the cited art of record. Thus, a *prima facie* case has not been established and the rejection must be withdrawn.

Veeneman et al. Does Not Teach Extracting Parameters From The SPVC Bundle Information

In support of the Examiner's contention, the Examiner refers to the following portion of Veeneman et al.:

Once a route has been found, BWA extracts the PVC and SPVC portions from the route. The first and the last endpoint inside the cloud that are used by the route are the endpoints of the SPVC portion.¹⁷

The Applicants respectfully submit the Examiner's attempt to equate extracting *parameters* from SPVC bundle information in a received *message*, with extracting portions from a *route*, is improper. For this additional reason, the 35 U.S.C. § 102 rejection of Claim 11 is unsupported by the cited art of record and the rejection must be withdrawn.

Veeneman et al. Does Not Teach Creating The SPVC Bundle Based On The Extracted Parameters, Each Of The Member SPVCs Being Associated With A Respective Connection Characteristic And Coupled From The Specified Source End

Claim 11 requires that each of the member SPVCs be associated with a respective connection characteristic. The Examiner refers to FIG. 4 of Veeneman et al., which illustrates an

¹⁶ Veeneman et al. at col. 4 ll. 65-66.

HSPVC path. As stated above, the HSPVC of Veeneman et al. is not an SPVC bundle where each of the member SPVCs comprise a PVC and an SVC. Thus, Veeneman et al. cannot be said to disclose that each member of the SPVC bundle be associated with a respective connection characteristic. For this additional reason, the 35 U.S.C. § 102 rejection of Claim 11 is unsupported by the cited art of record and the rejection must be withdrawn.

Dependent Claims 12 and 18

Claims 12 and 18 depend from Claim 11. Claim 11 being allowable, Claims 12 and 18 must also be allowable.

Claim 18

Claim 18 recites:

The method in accordance with claim 11, further comprising:
allocating a PVC connection and an SVC connection on the destination network device for each member SPVC.

The Examiner states:

... Veeneman teaches allocating a PVC connection and an SVC connection on the destination network device for each member SPVC [Col. 4, lines 55-59].¹⁸

The Applicants respectfully disagree. The arguments made above with respect to Claim 3 apply here as well. For this additional reason, the 35 U.S.C. § 102 rejection of Claim 18 is unsupported by the cited art of record and the rejection must be withdrawn.

Independent Claims 19, 27, 35, 53, and 58

¹⁷ Veeneman et al. at col. 4 ll. 20-22.

¹⁸ Office Action, p. 3.

Claims 19 and 27 are apparatus claims corresponding to method claims 1 and 11, respectively. Claims 53 and 58 are *In re Beauregard* claims corresponding to method claims 1 and 11, respectively. Claim 35 is a system claim including aspects of apparatus claims 19 and 27. Claims 1 and 11 being allowable, Claims 19, 27, 35, 53, and 58 must also be allowable.

Dependent Claims 20, 26, 28, 34, 36, 42-43, 45-46, 54-55, 59, and 61

Claims 20 and 26 depend from Claim 19. Claims 28 and 34 depend from Claim 27. Claims 36 and 42-43 depend from Claim 35. Claims 54-55 depend from Claim 53. Claims 59 and 61 depend from Claim 58. Claims 19, 27, 35, 53, and 58 being allowable, Claims 12, 18, 20, 26, 28, 34, 36, 42-43, 45-46, 54-55, 59, and 61 must also be allowable.

The First 35 U.S.C. § 103 Rejection

Claims 6, 7, 13, 14, 21, 22, 29, 30, 37, 38 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Veeneman et al. in view of Allan et al.,¹⁹ among which no claims are independent claims.²⁰ This rejection is respectfully traversed.

According to the Manual of Patent Examining Procedure (M.P.E.P.),

To establish a *prima facie* case of obviousness, three basic criteria must be met. First there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the applicant's disclosure.²¹

The 35 U.S.C. § 102 rejection of independent Claims 1, 11, 19, 27, and 35 based on Veeneman et al. is unsupported by the art, as each and every element as set forth in the claim is

¹⁹ U.S. Patent No. 5,946,313 to Allan et al.

²⁰ Office Action at ¶ 6.

not found, either expressly or inherently described, in Veeneman et al. Accordingly, the 35 U.S.C. § 103(a) of dependent claims 6, 7, 13, 14, 21, 22, 29, 30, 37, and 38 based on Veeneman et al. and further in view of Allan et al. is unsupported by the art because the combination of Veeneman et al. and Allan et al. does not teach all claim limitations.

The Second 35 U.S.C. § 103 Rejection

Claims 8, 15, 23, 31, and 39 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Veeneman et al. in view of Allan et al. and further in view of Chang et al.,²² among which no claims are independent claims.²³ This rejection is respectfully traversed. The 35 U.S.C. § 102 rejection of independent Claims 1, 11, 19, 27, and 35 based on Veeneman et al. is unsupported by the art, as each and every element as set forth in the claim is not found, either expressly or inherently described, in Veeneman et al. Accordingly, the 35 U.S.C. § 103(a) of dependent claims 8, 15, 23, 31, and 39 based on Veeneman et al. in view of Allan et al. and further in view of Chang et al. is unsupported by the art because the combination of Veeneman et al., Allan et al., and Chang et al. does not teach all claim limitations.

²¹ M.P.E.P § 2143.

²² U.S. Patent No. 7,133,420 to Chang et al.

²³ Office Action at ¶ 7.

The Third 35 U.S.C. § 103 Rejection

Claims 9, 16, 24, 32, 40, 47, 56 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Veeneman et al. in view of Chang et al.,²⁴ among which no claims are independent claims.²⁵ This rejection is respectfully traversed. The 35 U.S.C. § 102 rejection of independent Claims 1, 11, 19, 27, 35, and 53 based on Veeneman et al. is unsupported by the art, as each and every element as set forth in the claim is not found, either expressly or inherently described, in Veeneman et al. Accordingly, the 35 U.S.C. § 103(a) of dependent claims 9, 16, 24, 32, 40, 56 based on Veeneman et al. and further in view of Chang et al. is unsupported by the art because the combination of Veeneman et al. and Chang et al. does not teach all claim limitations.

The Fourth 35 U.S.C. § 103 Rejection

Claims 10, 17, 25, 33, 41, 48, 51, 57, 60 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Veeneman et al. in view of Hamedani et al.,²⁶ among which no claims are independent claims.²⁷ This rejection is respectfully traversed. The 35 U.S.C. § 102 rejection of independent Claims 1, 11, 19, 27, 35, 53, and 58 based on Veeneman et al. is unsupported by the art, as each and every element as set forth in the claim is not found, either expressly or inherently described, in Veeneman et al. Accordingly, the 35 U.S.C. § 103(a) of dependent claims 10, 17, 25, 33, 41, and 57 based on Veeneman et al. and further in view of Hamedani et al. is unsupported by the art because the combination of Veeneman et al. and Hamedani et al. does not teach all claim limitations.

²⁴ U.S. Patent No. 7,133,420 to Chang et al.

²⁵ Office Action at ¶ 8.

²⁶ U.S. Patent No. 6,560,242 to Hamedani et al.

Claims 44-52

Claims 44-52 are means-plus-function claims. In support of the 35 U.S.C. § 102 rejection of Claims 44-46, 49-50, and 52, and in the support of the 35 U.S.C. § 103 rejections of Claims 47-48 and 51, the Examiner refers to substantially the same portions of the cited references used in the Examiner's rejection of method claims and non-means-plus-function apparatus claims. The Examiner is referred to the U.S. Patent and Trademark Office document entitled "Examination Guidelines For Claims Reciting A "Means or Step Plus Function" Limitation In Accordance With 35 U.S.C § 112, 6th Paragraph" ("Guidelines"), a copy of which is submitted herewith for the Examiner's convenience. The Guidelines state:

... Per our holding, the 'broadest reasonable interpretation' that an examiner may give means-plus-function language is that statutorily mandated in paragraph six. Accordingly, *the PTO may not disregard the structure disclosed in the specification corresponding to such language when rendering a Patentability determination* ...

... [The] examiner shall interpret a § 112, 6th paragraph "means or step plus function" limitation in a claim as limited to the corresponding structure, materials or acts described in the specification and equivalents thereof in acts accordance with the following guidelines.²⁸

The Guidelines state further:

... if a prior art reference teaches identity of function to that specified in a claim, then under Donaldson an examiner carries the initial burden of proof for showing that the prior art structure or step is the same as or equivalent to the structure, material, or acts described in the specification which has been identified as corresponding to the claimed means or step plus function.²⁹

As Claims 44-52 of the present application are means-plus-function claims they cannot be said to be drawn to identical subject matter as the method claims and the non-means-plus-function apparatus claims. Furthermore, the Examiner has not shown for each means-plus-function claim,

²⁷ Office Action at ¶ 9.

²⁸ "Examination Guidelines For Claims Reciting A "Means or Step Plus Function" Limitation In Accordance With 35 U.S.C § 112, 6th Paragraph," U.S. Patent and Trademark Office, <http://www.uspto.gov/web/offices/pac/dapp/pdf/exmgu.pdf>, p. 1. (emphasis added)

that the prior art structure or step is the same as or equivalent to the structure, material, or acts described in the specification which has been identified as corresponding to the claimed means or step plus function. Therefore, the Examiner has not established a *prima facie* case. Accordingly, both the 35 U.S.C. § 102 rejection of Claims 44-46, 49-50, and 52, and the 35 U.S.C. § 103 rejections of Claims 47-48 and 51 must be withdrawn.

In view of the foregoing, it is respectfully asserted that the claims are now in condition for allowance.

Conclusion

It is believed that this Amendment places the above-identified patent application into condition for allowance. Early favorable consideration of this Amendment is earnestly solicited.

If, in the opinion of the Examiner, an interview would expedite the prosecution of this application, the Examiner is invited to call the undersigned attorney at the number indicated below.

The Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

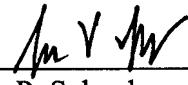
²⁹ Guidelines at p. 3. (emphasis in original)

Please charge any additional required fee or credit any overpayment not otherwise paid or credited to our deposit account No. 50-1698.

Respectfully submitted,

THELEN REID BROWN
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Dated: September 11, 2007


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**Examination Guidelines For Claims
Reciting A "Means or Step Plus Function" Limitation
In Accordance With 35 U.S.C § 112, 6th Paragraph**

The purpose of this memo is to set forth guidelines for the examination of § 112, 6th paragraph "means or step plus function" limitations in a claim. The court of Appeals for the Federal Circuit, in its en banc decision In re Donaldson 29 USPQ 2d 1845 (Fed. Cir. 1994), decided that a "means-or-step-plus-function" limitation should be interpreted in a manner different than patent examining practice has dictated for at least the last forty-two years. The Donaldson decision affects only the manner in which the scope of a "means or step plus function" limitation in accordance with § 112, 6th paragraph, is interpreted during examination. Donaldson does not directly affect the manner in which any other section of the patent statutes is interpreted or applied.

When making a determination of patentability under 35 U.S.C. §§ 102 or 103, past practice was to interpret a "means or step plus function" limitation by giving it the "broadest reasonable interpretation." Under the PTO's long-standing practice this meant interpreting such a limitation as reading on any prior art means or step which performed the function specified in the claim without regard for whether the prior art means or step was equivalent to the corresponding structure, material or acts described in the specification. However, in Donaldson the Federal Circuit stated that:

Per our holding, the "broadest reasonable interpretation" that an examiner may give means-plus-function language is that statutorily mandated in paragraph six. Accordingly, the PTO may not disregard the structure disclosed in the specification corresponding to such language when rendering a Patentability determination. ¹

Thus, effective immediately, examiner shall interpret a § 112, 6th paragraph "means or step plus function" limitation in a claim as limited to the corresponding structure, materials or acts described in the specification and equivalents thereof in accordance with the following guidelines.

I. Identifying a § 112, 6th paragraph limitation

¹ In re Donaldson, 29 USPQ2d 1845, 1850 (Fed. Cir. 1994).

Although there is no magic language that must appear in a claim in order for it to fall within the scope of § 112, 6th paragraph, it must be clear that the element in the claim is set forth, at least in part, by the function it performs as opposed to the specific structure, material, or acts that perform the function. Limitations that fall within the scope of § 112, 6th paragraph include:

- (1) a jet driving device so constructed and located on the rotor as to drive the rotor . . . ² ["means" unnecessary]
- (2) "printing means" and "means for printing" would have the same connotations ³
- (3) force generating means adapted to provide . . . ⁴
- (4) call cost register means, including a digital display for providing a substantially instantaneous display for . . . ⁵
- (5) reducing the coefficient of friction of the resulting film⁶ [step plus function; "step" unnecessary], and
- (6) raising the Ph of the resultant pulp to about 5.0 to precipitate . . . ⁷

²The term "device" coupled with a function is a proper definition of structure in accordance with the last paragraph of § 112. The addition of the words "jet driving" to the term "device" merely renders the latter more definite and specific. Ex parte Stanley, 121 USPQ 621 (Bd. APP. 1958).

³Ex parte Klum, 159 USPQ 694 (Bd. App. 1967). However, the terms "plate" and "wing", as modifiers of the structureless term "means," specify no function to be performed, and do not fall under the last paragraph of § 112.

⁴De Graffenreid v. U.S., 20 Ct. Cl. 458, 16 USPQ2d 1321 (Ct. Cl. 1990)

⁵Intellicall Inc. v. Phonometrics Inc., 952 F.2d 1384, 21 USPQ2d 1383 (Fed. Cir. 1992).

⁶In re Roberts, 470 F.2d 1399, 176 USPQ 313 (CCPA 1973).

⁷Ex parte Zimmerley, 153 USPQ 367 (Bd. App. 1966)

In the event that it is unclear whether the claim limitation falls within the scope of §112, 6th paragraph, a rejection under §112, 2d paragraph may be appropriate.

Donaldson does not affect the holding of In re Hyatt, 708 F.2d 712, 218 USPQ 195 (Fed. Cir. 1983) to the effect that a single means claim does not comply with the enablement requirement of § 112, first paragraph. As Donaldson applies only to an interpretation of a limitation drafted to correspond to § 112, 6th paragraph, which by its terms is limited to "an element in a claim to a combination," it does not affect a limitation in a claim is not directed to a combination.

II. Examining Procedure

A. Scope of the Search and Identification of the Prior Art

As noted above, in Donaldson the Federal Circuit recognized that it is important to retain the principle that claim language should be given its broadest reasonable interpretation. This principle is important because it helps insure that the statutory presumption of validity attributed to each claim of an issued patent is warranted by the search and examination conducted by the examiner. It is also important from the standpoint that the scope of protection afforded by patents issued prior to Donaldson are not unnecessarily limited by the latest interpretation of this statutory provision. Finally, it is important from the standpoint of avoiding the necessity for a patent specification to become a catalogue of existing technology. ⁸

The Donaldson decision thus does not substantially alter examining practice and procedure relative to the scope of the search. Both before and after Donaldson, the application of a prior art reference to a means or step plus function limitation requires that the prior art element perform the identical function specified in the claim. However, if a prior art reference teaches identity of function to that specified in a claim, then under Donaldson an examiner carries the initial burden of proof for showing that the prior art structure or step is the same as or equivalent to the structure, material, or acts described in the specification which has been identified as corresponding to the claimed means or step plus function.

⁸A patent specification need not teach, and preferably omits, what is well known in the art. Hybritech Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 1384, 231 USPQ 81, 94 (Fed. Cir. 1986).

The "means or step plus function" limitation should be interpreted in a manner consistent with the specification disclosure. If the specification defines what is meant by the limitation for the purposes of the claimed invention, the examiner should interpret the limitation as having the meaning. If no definition is provided, some judgment must be exercised in determining the scope of the limitation.

B. Making a prima facie case of equivalence

If the examiner finds that a prior art element performs the function specified in the claim, and is not excluded by any explicit definition provided in the specification for an equivalent, the examiner should infer from that finding that the prior art element is an equivalent, and should then conclude that the claimed limitation is anticipated by the prior art element. The burden then shifts to applicant⁹ to show that the element shown in the prior art is not an equivalent of the structure, material or acts disclosed in the application. In re Mulder, 716 F.2d 1542, 219 USPQ 189 (Fed. Cir. 1983).¹⁰ The factors to be

⁹No further analysis of equivalents is required of the examiner until applicant disagrees with the examiner's conclusion, and provides reasons why the prior art element should not be considered an equivalent.

¹⁰See also, In re Walter, 618 F.2d at 768, 205 USPQ at 407-08, (a case treating § 112, 6th paragraph, in the context of a determination of statutory subject matter and noting "If the functionally-defined disclosed means and their equivalents are so broad that they encompass any and every means for performing the recited functions . . . the burden must be placed on the applicant to demonstrate that the claims are truly drawn to specific apparatus distinct from other apparatus capable of performing the identical functions"); In re Swinehart, 439 F.2d 210, 212-13, 169 USPQ 226, 229 (C.C.P.A. 1971) (a case in which the CCPA treated as improper a rejection under § 112, 2d paragraph, of functional language, but noted that "where the Patent Office has reason to believe that a functional limitation asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require the applicant to prove that the subject matter shown to be in the prior art does not possess the characteristics relied on"); and In re Fitzgerald 619 F.2d 67, 205 USPQ 594 (CCPA 1980) (a case indicating that the burden of proof can be shifted to the applicant to show that the subject matter of the prior art does not possess the characteristic relied on whether the rejection is based on inherency under § 102 or obviousness under § 103).

considered when determining whether the applicant has successfully met the burden of proving that the prior art element is not equivalent to the structure, material or acts described in the applicant's specification are discussed below.

However, even where the applicant has met that burden of proof and has shown that the prior art element is not equivalent to the structure, material or acts described in the applicant's specification, the examiner must still make a §103 analysis to determine if the claimed means or step plus function is obvious from the prior art to one of ordinary skill in the art. Thus, while a finding of non equivalence prevents a prior art element from anticipating a means or step plus function limitation in a claim, it does not prevent the prior art element from rendering the claim limitation obvious to one of ordinary skill in the art.

Because the exact scope of an "equivalent" may be uncertain, it would be appropriate to apply a §102/§103 rejection where the balance of the claim limitations are anticipated by the prior art relied on.¹¹ In addition, although it is normally the best practice to rely on only the best prior art references in rejecting a claim, alternative grounds of rejection may be appropriate where the prior art shows elements that are different from each other, and different from the specific structure, material or acts described in the specification, yet perform the function specified in the claim.

C. Determining whether an applicant has met the burden of providing non-equivalence after a *prima facie* case is made

If the applicant disagrees with the inference of equivalence drawn from a prior art reference, the applicant may provide reasons why the applicant believes the prior art element should not be considered an equivalent to the specific structure, material or acts disclosed in the specification. Such reasons may include, but are not limited to: 1) teachings in the specification that particular prior art is not equivalent, 2) teaching in the prior art reference itself that may tend to show non-equivalence, or 3) Rule 132 affidavit evidence of facts tending to show non-equivalence.

When the applicant relies on teachings in applicant's own specification, the examiner must make sure that the applicant is interpreting the "means or step plus function" limitation in the

¹¹A similar approach is authorized in the case of product-by--process claim because the exact identity of the claimed product or the prior art product cannot be determined by the examiner. In re Brown, 450 F.2d 531, 173 USPQ 685 (CCPA 1972).

claim in a manner which is consistent with the disclosure in the specification. If the specification defines what is meant by "equivalents" to the disclosed embodiments for the purpose of the claimed means or step plus function, the examiner should interpret the limitation as having that meaning. If no definition is provided, some judgment must be exercised in determining the scope of "equivalents." Generally, an "equivalent" is interpreted as embracing more than the specific elements described in the specification for performing the specified function,¹² but less than any element that performs the function specified in the claim.

The scope of equivalents embraced by a claim limitation is dependent on the interpretation of an "equivalent". The interpretation will vary depending on how the element is described in the supporting specification. The claim may or may not be limited to particular structure, material or acts (e.g. steps) as opposed to any and all structure, material or acts performing the claimed function, depending on how the specification treats that question.

If the disclosure is so broad as to encompass any and all structure, material or acts for performing the claimed function, the claims must be read accordingly when determining patentability. When this happens the limitation otherwise provided by "equivalents" ceases to be a limitation on the scope of the claim in that an equivalent would be any structure, material or act other than the ones described in the specification that perform the claimed function. For example, this situation will often be found in cases where (1) the claimed invention is a combination of elements, one or more of which are selected from elements that are old *per se*, or (2) apparatus claims are treated as indistinguishable from method claims.¹³

¹²To interpret "means plus function" limitations as limited to a particular means set forth in the specification would nullify the provisions of § 112 requiring that the limitation shall be construed to cover the structure described in the specification and equivalents thereof. D.M.I., Inc. v. Deere & Co., 755 F.2d 1570, 1574, 225 USPQ 236, 238 (Fed. Cir. 1985).

¹³See, for example, In re Meyer, 688 F.2d 789, 215 USPQ 193 (1982); In re Abele, 618 F.2d at 768, 205 USPQ at 401-08; In re Walter, 618 F.2d 758, 767, 205 USPQ 397, 406-07 (C.C.P.A. 1980); In re Maucorps, 609 F.2d 481, 203 USPQ 812 (C.C.P.A. 1979); In re Johnson, 589 F.2d, 1070, 200 USPQ 199 (C.C.P.A. 1978); and In re Freeman, 573 F.2d at 1246, 197 USPQ at 471.

On the other end of the spectrum, the "equivalents" limitation as applied to a claim may also operate to constrict the claim scope to the point of covering virtually only the disclosed embodiments. This can happen in circumstances where the specification describes the invention only in the context of a specific structure, material or act that is used to perform the function specified in the claim.

When deciding whether an applicant has met the burden of proof with respect to showing non-equivalence of a prior art element that performs the claimed function, the following factors may be considered. First, unless an element performs the identical function specified in the claim, it cannot be a equivalent for the purpose of §112, 6th paragraph. ¹⁴

Second, while there is no litmus test for an "equivalent" that can be applied with absolute certainty and predictability, there are several indicia that are sufficient to support a conclusion that one element is or is not an "equivalent" of a different element in the context of § 112, 6th paragraph. Among the indicia that will support a conclusion that one element is or is not an equivalent of another are:

- 1) Whether the prior art element performs the function specified in the claim in substantially the same results as the corresponding element disclosed in the specification. ¹⁵
- 2) Whether a person of ordinary skill in the art would have recognized the interchangeability of the element shown in the prior art for the corresponding element disclosed in the specification. ¹⁶

¹⁴ Pennwalt Corp. v. Durand-Wayland Inc . 833 F.2d 931, 4 USPQ2d 1737 (Fed. Cir. 1987), cert. denied, 484 U.S. 961 (1988).

¹⁵ Lockheed Aircraft Corporation v. United States , 193 USPQ 449, 461 (Ct. Cl. 1977). Graver Tank concepts of equivalents are relevant to any "equivalents" determination. Polumbo v. Don-Joy Co. , 762 F.2d 696, 975, n. 4, 226 USPQ 5, 8-9, n. 4 (Fed. Cir. 1985).

¹⁶ Lockheed Aircraft Corporation v. United States , 193 USPQ 449, 461 (Ct. Cl. 1977). Data Line Corp. v. Micro Technologies. Inc ., 813 F.2d 1196, 1 USPQ2d 2052 (Fed. Cir. 1987).

- 3) Whether the prior art element is a structural equivalent of the corresponding element disclosed in the specification being examined.¹⁷ That is, the prior art element performs the function specified in the claim in substantially the same manner as the function is performed by the corresponding element described in the specification.
- 4) Whether the structure, material or acts disclosed in the specification represents an insubstantial change which adds nothing of significance to the prior art element. ¹⁸

These examples are not intended to be an exhaustive list of the indicia that would support a finding that one element is or is not an equivalent of another element for the purposes of § 112, 6th paragraph. A finding according to any of the above examples would represent a sufficient, but not the only possible, basis to support a conclusion that an element is or is not an equivalent. There could be other indicia that also would support the conclusion.

In determining whether arguments or Rule 132 evidence presented by an applicant are persuasive that the element shown in the prior art is not an equivalent, the examiner should consider and weigh as many of the above-indicated or other indicia as are presented by applicant, and should determine whether, on balance, the applicant has met the burden of proof to show non-equivalence. However, under no circumstance should an examiner accept as persuasive a bare statement or opinion that the element shown in the prior art is not an equivalent embraced by the claim limitation. Moreover, if an applicant argues that the "means" or "step" plus function language in a claim is limited to certain specific structural or additional functional characteristics (as opposed to "equivalents" thereof) where the specification does not describe the invention as being only those specific characteristics, the claim should not be allowed until the claim is amended to recite those specific structural or additional functional characteristics. ¹⁹

¹⁷ In re Bond, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

¹⁸ Valmont Industries Inc. v. Reinke Manufacturing Co. Inc., ⁹⁸³ F.2d 1039, 25 USPQ2d 1451 (Fed. Cir. 1993).

¹⁹ Otherwise, a claim could be allowed having broad functional language which in reality is limited to only the specific structure or steps disclosed in the specification. This would be

Finally, as in the past, applicant has the opportunity during proceedings before the Office to amend the claims so that the claimed invention meets all the statutory criteria for patentability. An applicant may choose to amend the claim by further limiting the function so that there is no longer identity of function with that taught by the prior art element, or the applicant may choose to replace the claimed means plus function limitation with specific structure material or acts that are not described in the prior art.

D. Related issues under Section 112 first or second paragraphs

The Donaldson decision may create some uncertainty as to what applicant regards as the invention. If this issue arises, it should be addressed in a rejection under §112, 2d paragraph. While § 112, 6th paragraph permits a particular form of claim limitation, it can not be read as creating an exception either to the description, enablement or best mode requirements of the 1st paragraph or the definiteness requirement of the 2d paragraph of § 112. In re Knowlton, 481 F.2d 1357, 178 USPQ 486 (CCPA 1973). If a "means or step plus function" limitation recited in a claim is not supported by corresponding structure, material or-acts in the specification disclosure, the following rejections should be considered: (1) under § 112, 1st paragraph, as not being supported by an enabling disclosure because the person skilled in the art would not know how to make and use the invention without a description of elements to perform the function; 20 (2) under § 112, 2d paragraph, as being indefinite because the element or step is not defined in the specification by corresponding structure, material or acts; (3) under §§ 102 or 103 where the prior art anticipates or renders obvious the claimed subject matter including the means or step that performs the function specified in the claim. (Theory: since there is no corresponding structure, etc. in the specification to limit the means or step plus function limitation, an equivalent is any element that performs the specified function).

contrary to public policy of granting patents which provide adequate notice to the public as to a claim's true scope.

20 The description of an apparatus with block diagrams describing the function, but not the structure, of the apparatus is not fatal under the enablement requirement of § 112, 1st paragraph, as long as the structure is conventional and can be determined without an undue amount of experimentation. In re Ghiron, 442 F. 2d 985, 991,169 USPQ 723, 727 (CCPA 1971)

III. Avoid confusion with the doctrine of equivalents

An "equivalent" for the purposes of § 112, 6th paragraph, should not be confused with the doctrine of equivalents. The doctrine of equivalents, most often associated with Graver Tank & Mfg. Co. v. Linde Air Products 339 U.S. 605, 85 USPQ 328 (1950), is sometimes applied to do equity among the parties before the court in an infringement action involving an issued patent. The doctrine typically involves a three-part inquiry - whether an accused device performs substantially the same function, in substantially the same way, to obtain substantially the same result as the claimed invention.

Section § 112, 6th paragraph limits the scope of the broad language of "means or step plus function" limitations, in a claim to a combination, to the structures, materials and acts described in the specification and equivalents thereof. The doctrine of equivalents equitable expands exclusive patent rights beyond the literal scope of a claim.²¹ Accordingly, decisions involving the doctrine of equivalents should not unduly influence a determination under § 112, 6th paragraph during ex parte examination.

²¹Valmont Industries Inc., Reinke Manufacturing Co., Ind., 983 F.2d 1039, 1043, 1044, 25 USPQ2d 1451, 1455 (Fed. Cir. 1993).